Claims

1. A connection system for connecting at least one contact (1a, 1b, 1c, 1d, 1e, 1f, 1g) of at least one flat block of components (2) to at least one apparatus (3a, 3b, 3c),

having

a conductive connecting element (4a, 4b, 4c, 4d, 4e, 4f, 4g), connected electrically conductively to the at least one contact (1a, 1b, 1c, 1d, 1e, 1f, 1g) of the flat block of components (2), and

a clamping device (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h), connected electrically conductively to the apparatus,

in which the clamping device (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h) is embodied for receiving the connecting element (4a, 4b, 4c, 4d, 4e, 4f, 4g) and thus via the connecting element (4a, 4b, 4c, 4d, 4e, 4f, 4g) making an electrically conductive connection between the apparatus (3a, 3b, 3c) and the contact (1a, 1b, 1c, 1d, 1e, 1f, 1g) of the flat block of components (2),

characterized in that the connecting element (4a, 4b, 4c, 4d, 4e, 4f, 4g) connected to the at least one contact (1a, 1b, 1c, 1d, 1e, 1f, 1g) of the flat block of components (2) is embodied as a rigid conductor in the form of a screw fastened electrically conductively to the contact (1a, 1b, 1c, 1e, 1f) of the flat block of components (2), which screw, with a shaft (8a, 8b, 8c, 8e, 8f), penetrates a bore (9a, 9b, 9c, 9e, 9f) made in the flat block of components (2) in the region of the contact (1a, 1b, 1c, 1e, 1f), and which is locked, on a second side (11) of the flat block of components diametrically opposite a first side (10) of the flat block of components (2), via a nut (7a, 7b, 7c, 7e, 7f).

2. The connection system as defined by claim 1,

characterized in that the connecting element (4a, 4b, 4c, 4d, 4e, 4f, 4g) directly engages the clamping device (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h) of the apparatus (3a, 3b, 3c).

3. The connection system as defined by one of the foregoing claims,

characterized in that the flat block of components (2) is an assembled printed circuit board.

4. The connection system as defined by claim 3,

characterized in that one or more rectifiers for one or more inverters of a magnetic resonance gradient amplifier are disposed on the printed circuit board (2) and are connected to one or more associated apparatuses (3a, 3b, 3c) via one or more connecting elements (4a, 4b, 4c, 4d, 4e, 4f, 4g) and one or more clamping devices (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h).

5. The connection system as defined by one of the foregoing claims,

characterized in that the connection system is embodied for connecting many contacts (1a, 1b, 1c, 1d, 1e, 1f, 1g) of the at least one flat block of components (2) to many clamping devices (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h) of the at least one apparatus (3a, 3b, 3c),

and the connecting elements (4a, 4b, 4c, 4d, 4e, 4f, 4g) are disposed on the at least one flat block of components (2) in accordance with the disposition of the clamping devices (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h).

6. The connection system as defined by one of the foregoing claims,

characterized in that the at least one clamping device (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h) is a screw terminal (5a, 5b, 5c, 5g) or a spring clip (5e, 5f, 5g, 5h).

7. The connection system as defined by one of the foregoing claims,

characterized in that it is suited for conducting voltages of over 24 volts, preferably over 120 volts, and especially preferably over 240 volts and/or currents of over 0.5 ampere, preferably over 1 ampere, and especially preferably over 10 amperes.

8. The connection system as defined by one of the foregoing claims,

characterized in that the at least one clamping device (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h) of the at least one apparatus is furnished directly on the at least one apparatus (3a, 3b, 3c) or via one or more separate securing robots electrically connected to the apparatus.

9. The connection system as defined by claim 8,

characterized in that a plurality of securing robots are disposed in a row on a distributor busbar.

10. The connection system as defined by one of claims 14 through 16,

characterized in that the device (3a, 3b, 3c) is embodied as a transformer for furnishing a potential-free supply voltage for full bridge inverters of a magnetic resonance gradient amplifier.

11. The connection system as defined by one of the foregoing claims,

characterized in that the screw (4a, 4b, 4c, 4e) has a head (6a, 6b, 6c, 6e), which comes into electrical contact with the contact (1a, 1b, 1c, 1e) on the first side (10) of the flat block of components (2).

12. The connection system (2) as defined by one of the foregoing claims,

characterized in that the nut (7a, 7b, 7c, 7f) comes into electrical contact with the contact (1a, 1b, 1c, 1f) on the second side (11) of the flat block of components (2).

13. The connection system (2) as defined by one of claims 11 or 12,
characterized in that the head (6a, 6b) of the screw (4a, 4b, 4c) is soldered or welded to the contact (1a, 1b, 1c).

14. The connection system (2) as defined by claim 11 or 12, characterized in that the nut (7a, 7c) is soldered or welded to the contact (1a, 1b, 1c).

15. A flat block of components (2) having at least one contact (1a, 1b, 1c, 1d, 1e, 1f, 1g) for connection to at least one apparatus (3a, 3b, 3c), which has an electrically conductively connected clamping device (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h),
in which the flat block of components (2) has
a conductive connecting element (4a, 4b, 4c, 4d, 4e, 4f, 4g) connected electrically conductively to the at least one contact (1a, 1b, 1c, 1d, 1e, 1f, 1g),
characterized in that connecting element (4a, 4b, 4c, 4d, 4e, 4f, 4g) is embodied as a rigid conductor in the form of a screw fastened electrically conductively to the contact (1a, 1b, 1c, 1e, 1f) of the flat block of components (2), which screw, with a shaft (8a, 8b, 8c, 8e, 8f), penetrates a bore (9a, 9b, 9c, 9e, 9f) made in the flat block of components (2) in the region of the contact (1a, 1b, 1c, 1e, 1f), and which is locked, on a second side (11) of the flat block of components diametrically opposite a first side (10) of the flat block of components (2), via a nut (7a, 7b, 7c, 7e, 7f).

16. The flat block of components (2) as defined by claim 15,
characterized in that the connecting element (4a, 4b, 4c, 4d, 4e, 4f, 4g) is embodied for direct engagement in the clamping device (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h) of the apparatus (3a, 3b, 3c).

17. The flat block of components as defined by claim 15 or 16,
characterized in that the flat block of components (2) is an assembled printed circuit board.

18. The flat block of components as defined by claim 17,
characterized in that one or more rectifiers for one or more inverters of a magnetic resonance gradient amplifier are disposed on the printed circuit board (2) and are connected to one or more associated apparatuses (3a, 3b, 3c) via one or more connecting elements (4a, 4b, 4c, 4d, 4e, 4f, 4g) and one or more clamping devices (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h).

19. The flat block of components (2) as defined by one of claims 15 through 18,

characterized in that the screw (4a, 4b, 4c, 4e) has a head (6a, 6b, 6c, 6e), which comes into electrical contact with the contact (1a, 1b, 1c, 1e) on the first side (10) of the flat block of components (2).

20. The flat block of components (2) as defined by one of claims 15 through 19,

characterized in that the nut (7a, 7b, 7c, 7f) comes into electrical contact with the contact (1a, 1b, 1c, 1f) on the second side (11) of the flat block of components (2).

21. The flat block of components (2) as defined by one of claims 19 or 20,

characterized in that the head (6a, 6b) of the screw (4a, 4b, 4c) is soldered or welded to the contact (1a, 1b, 1c).

22. The flat block of components (2) as defined by claim 20 or 21,

characterized in that the nut (7a, 7c) is soldered or welded to the contact (1a, 1b, 1c).